Patent Claims

1. Device for the simultaneous and qualitative or quantitative determination of a plurality of analytes in a liquid sample, comprising at least one membrane (2) with

   - an application zone (5) for the application of the liquid sample,
   - at least one group of at least two indicator zones, which are able to interact with the analyte(s) and
   - at least one absorption region (3) which takes up the liquid after having passed the indicator zones

   wherein the indicator zones are located between the application zone (5) and the absorption region (3), characterized in that
   the flow directions from the application zone (5) through the respective indicator zones of a group towards an absorption region (3) (flow tracks) are substantially parallel and that at least two different flow tracks are present.

2. Apparatus according to claim 1, wherein the indicator zones are so arranged that the test liquids for any one flow track flow through not more than one indicator zone.

3. Device according to claim 1, wherein the indicator zones are arranged in a diagonal V-, W-, M-, N-shaped or linear row.

4. Device according to any one of claims 1 to 3, wherein at least two rows of indicator zones are arranged in the flow direction one behind the other and/or laterally staggered and the indicator zones of the different rows are arranged in relation to one another with a gap there between so that the test liquid for any one flow track flows through not more than one indicator zone.

5. Device according to claim 1 or 3, wherein at least two rows of indicator zones are arranged in the flow direction one behind the other and/or side by side and the

indicator zones of the different rows in relation to one another are arranged without a gap there between so that the test liquid for any one flow track passes through more than one indicator zone.

6. Device according to claims 1 to 3, wherein at least two groups of indicator zones are arranged which are disposed starting from the application zone in different flow directions.

7. Device according any one of claims 1 to 6, wherein the indicator zones comprise antibodies or antibody fragments or lectines, antigens or antigen epitopes and/or cells or cell fragments.

8. Device according to any one of claims 1 to 7, wherein the indicator zones comprise in particular antibodies or antibody fragments against blood group antigens or antigen epitopes and membranes or cell fragments of blood groups A1, A2, B and/or O erythrocytes.

9. Device according to any one of claims 1 to 7, wherein the indicator zones comprise in particular antibodies or antibody fragments against blood group antigens or antigen epitopes and synthetic peptides, recombinant antigens and/or antibodies or antibody fragments against infective markers.

10. Device according to any one of claims 1 to 7, wherein the indicator zones comprise in particular antibodies or antibody fragments against blood group antigens or antigen epitopes and fragments of thrombocytes and/or lymphocytes.

11. Device according to any one of claims 1 to 10, wherein all the membranes (2) preferably consist of polyethylene, nitrocellulose or nylon.

12. Device according to any one of claims 1 to 11, wherein downstream of the application zone (5) and upstream of the indicator zones at least one sealing element (4) is provided on the membrane (2).

13. Device according to any one of claims 1 to 12, wherein downstream of the sealing element (4) and upstream of the indicator zones at least one conjugate pad is applied.

14. Device according to any one of claims 1 to 13, wherein the components of the device have been applied onto a support layer (1) for mechanical reinforcement.

15. Device according to any one of claims 1 to 14, wherein the components of the device are integrated in a casing.

16. Use of the device according to any one of claims 1 to 11 for the analysis of blood, in particular for the simultaneous performance of blood group determinations and serum reverse grouping (serum cross-check) and/or antibody detection test.

17. Use of the device according to any one of claims 1 to 11 for the analysis of blood, in particular for the simultaneous performance of blood group determinations and the detection of infection serological markers or fragments thereof.

18. Use of the device according to any one of claims 1 to 11 for the analysis of blood, in particular for the simultaneous performance of blood group determinations and the detection of antibodies against blood cells, in particular anti-thrombocyte or anti-lymphocyte antibodies or the respective fragments thereof.

19. Process for the determination of a plurality of analytes or their derivatives in a liquid sample, comprising:

the application of the sample onto the application zone (5) of at least one membrane (2) of the device according to any one of the preceding claims 1 to 15, wherein this sample is present in adequate amounts in order to induce the test liquid to flow in the direction of the absorption region (3) through the indicator zones and to induce the analytes or their derivatives in the test liquid to form a complex in the indicator zones.

20. Process according to claim 19, wherein the analytes or their derivatives are blood group antigens or antigen epitopes, antibodies directed against blood group antigens or fragments thereof, antibodies or fragments thereof directed against thrombocytes or leukocytes or antibodies or fragments thereof directed against infective agents or antigens of infective agents or antigen epitopes.

21. Process according to claims 19 or 20, wherein the analytes or their derivatives include in particular antigens or antigen epitopes of the blood group systems ABO, Rh and Kell.

22. Process according to claims 19 or 20, wherein the analytes or their derivatives include in particular antibodies or fragments thereof against thrombocytes and/or lymphocytes.

23. Process according to claims 19 or 20, wherein the analytes or their derivatives include in particular antibodies or fragments thereof against bacterial and/or viral agents or viral or bacterial antigens or antigen epitopes.

24. Process against any one of claims 19 to 23, wherein the liquid samples comprise preferably complete blood, blood cell concentrate, serum, plasma and/or test liquid, for example control serum or control cells.

25. Process according to any one of claims 19 to 24, wherein at least two types of indicator particles are used of which at least one type represents erythrocytes.